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| 09/863,419 | 05/24/2001 | William D. Norcott | 50277-1005 | 9399 |

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| EXAMINER | |
|---|---|
| ALI, MOHAMMAD | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2177 | 5 |

DATE MAILED: 03/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Applicati n N . | Applicant(s) | |
|---|---|---|---|
| | 09/863,419 | NORCOTT, WILLIAM D. | |
| | Examiner | Art Unit | |
| | Mohammad Ali | 2177 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *23 January 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

1. This communication is responsive to the Amendment filed on January 23, 2004.

Claims 1-10 are pending in this Office Action.

After a further search and a thorough examination of the present application, claims 1-10 are remain rejected.

Applicant's arguments with respect to claims 1-10 have been considered, but they are not deemed to be persuasive.

**First**, Applicants argue that Norcott does not teach, "storing the change data from the recovery log in a database object other than the source object".

In response to Applicant's arguments, the Examiner respectfully submits that in particular, Norcott teaches this limitation as the range data including the start and end ROWID values are database objects and updates the redo log to indicate the changes made to the range table ensures that identification of the new data can be recovered in the event of a database crash that affects the data in the ROWID range table. The start and end ROWID values are stored as a new data records, see col. 5, lines 57-63.

**Second**, Applicants argue that Norcott and Goldring do not teach, " shipping a recovery log from an on-line transaction processing (OLAP) system to a staging system".

In response to Applicant's arguments, the Examiner respectfully submits that in particular, Norcott teaches this limitation as the source of the data is an online transaction processing (OLTP) database and OLTP databases provide a mechanism for exporting [shipping] data from the database into a static file, see col. 4, lines 20-25.

Norcott does not explicitly teach the claimed limitation of "staging system". However, Goldring cures such deficiencies by teaching the captured changes are placed in staging tables with transaction detail stored in separately in a unit of work table, see col. 3, lines 11-17. It would have been obvious to one ordinary skill in the data processing art, at the time of the present invention to combine the teachings of the cited references. The teaching of staging system by Goldring's would allowed Norcott's system to optimize a query to retrieve data from a dynamically increasing relational database storage as suggested by Goldring, see col. 4, lines 18-20. Further, staging system as taught by Goldring improves to perform aggregation operation includes initialization the base table by executing the query against the relational database (see col. 4, lines 36-41, Goldring).

**Third**, Applicants argue that "ordinary skill in the art would not motivate to combine the references".

In response to Applicant's arguments, the Examiner respectfully submits that ordinary skill does motivate to combine the references as stated above.

Hence, Applicants arguments do not distinguish the claimed invention over the prior art of record.

In light of the forgoing arguments, the 103 rejections are hereby sustained.

***Claim R jections - 35 USC § 102***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4 and 6 are rejected under 35 U.S.C. 102(b) as being anticipate by William D. Norcott ('Norcott' hereinafter), US Patent 5,848,405.

With respect to claim 1,

Norcott teaches a method for change data capture (see col. 1, lines 64 to col. 2, line 1), comprising the steps of:

executing a database statement (see col. 6, lines 54-55) to extract from a recovery log (new data for refresh processing purposes, the server process deletes [extract] the ROWID range from the ROWID range table. Updates a redo log to indicate the changes made to the range table ensures that identification of the new data can be recovered in the event of database crash, see col. 6, lines 29-31 and col. 5, lines 59-61, Norcott), change data indicating at least one modification that has been performed to a source object (updates a redo log to indicate the changes made to the range table, see col. 5, lines 59-60, Norcott); and

storing the change data from the recovery log in a database object, other than the source object (the start and end ROWID values are database objects and stored in step 406, see col. 5, lines 57-67, Fig. 4, Norcott).

As to claim 2,

Norcott teaches wherein the database object includes a change table (the server process updates a redo log to indicate the changes made to the range table, see col. 5, lines 54-55, Norcott).

As to claim 3,

Norcott teaches renaming a source column into a change column (the server process updates a redo log to indicate the changes made to the range table. Since table has been changed columns and rows automatically changed, see col. 5, lines 54-55 and col. 7, lines 3-6, Norcott).

As to claim 4,

Norcott teaches generating the database statement to extract the change data from the recovery log and further to store the change data in the database object (If the new data records are stored entirely within a single group of data records having a contiguous sequence of ROWIDs, then the summary refresh process is completed after the server process deletes [extract] the ROWID range from the ROWID range table, see col. 6, lines 27-32 and lines 50-58, Norcott).

As to claim 6,

Norcott teaches a computer-readable medium bearing instructions for change data capture, said instructions arranged, when executed, to cause one or more processors to perform the steps of a method (queries are processed by computer system 100 in response to processor 102 executing sequences of instructions contained in memory 104 and the instructions can read into memory 104 from another computer-readable medium, such as data storage device. Execution of the sequences

of instructions contained in memory 104 causes processor 102 to perform the process, see col. 3, lines 20-28, Norcott).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over William D. Norcott ('Norcott' hereinafter), US Patent 5,848,405 as applied to claims 1-4, and 6 above in view of Robert D. Goldring ('Goldring' hereinafter), US Patent 6,438,538 B1.

As to claim 5,

Norcott teaches shipping the recovery log from an on-line transaction processing (OLTP) system (The source of the data is an online transaction processing (OLTP) database and OLTP databases provide a mechanism for exporting [shipping] data from the database into a static file, see col. 4, lines 20-25, Norcott).

Norcott does not explicitly indicate the claimed "staging system".

Goldring discloses claimed staging system (The Capture component captures changes made to data in tables defined as replication sources by reading the database transaction log or journal, without making any changes to the sources, and is performed asynchronously to business applications using the same replication sources. The

captured changes are placed in staging tables, with transaction detail stored in separately in a unit of work table, see col. 3, lines 11-17, Goldring).

It would have been obvious to one ordinary skill in the data processing art, at the time of the present invention, to combine the teachings of the cited references because the staging system of Goldring's teachings would have allowed to Norcott's system to optimize a query to retrieve data from a dynamically increasing relational database storage as suggested by Goldring, see col. 4, lines 18-20. Staging system as taught by Goldring improves to perform aggregation operation includes initialization the base table by executing the query against the relational database (see col. 4, lines 36-41, Goldring).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over William D. Norcott ('Norcott' hereinafter), US Patent 5,848,405 in view of Robert D. Goldring ('Goldring' hereinafter), US Patent 6,438,538 B1.

With respect to claim 7,

Norcott teaches a method of change data capture (see col. 1, lines 64 to col. 2, line 1), comprising the steps of:

shipping a recovery log (Updates a redo log to indicate the changes made to the range table ensures that identification of the new data can be recovered in the event of database crash, see col. 5, lines 59-61, Norcott) from an on-line transaction processing (OLTP) system (The source of the data is an online transaction processing (OLTP) database and OLTP databases provide a mechanism for exporting [shipping] data from the database into a static file, see col. 4, lines 20-25, Norcott); and

Norcott teaches performing the steps (see col. 5, lines 59-61) of:

extracting change data from a recovery log (new data for refresh processing purposes, the server process deletes [extract] the ROWID range from the ROWID range table. Updates a redo log to indicate the changes made to the range table ensures that identification of the new data can be recovered in the event of database crash, see col. 6, lines 29-31 and col. 5, lines 59-61, Norcott); and

storing the change data from the recovery log in a database object (the start and end ROWID values are database objects and stored in step 406, see col. 5, lines 58-66, Fig. 4, Norcott), said change data indicating at least one modification that has been performed to a source object (updates a redo log to indicate the changes made to the range table, see col. 5, lines 59-60, Norcott).

Norcott does not explicitly indicate the claimed "staging system".

Goldring discloses claimed staging system (The Capture component captures changes made to data in tables defined as replication sources by reading the database

transaction log or journal, without making any changes to the sources, and is performed asynchronously to business applications using the same replication sources. The captured changes are placed in staging tables, with transaction detail stored in separately in a unit of work table, see col. 3, lines 11-17, Goldring).

It would have been obvious to one ordinary skill in the data processing art, at the time of the present invention, to combine the teachings of the cited references because the staging system of Goldring's teachings would have allowed to Norcott's system to optimize a query to retrieve data from a dynamically increasing relational database storage as suggested by Goldring, see col. 4, lines 18-20. Staging system as taught by Goldring improves to perform aggregation operation includes initialization the base table by executing the query against the relational database (see col. 4, lines 36-41, Goldring).

With respect to claim 8,

Norcott teaches a method of change data capture (see col. 1, lines 64 to col. 2, line 1), comprising the steps of:

shipping a recovery log (Updates a redo log to indicate the changes made to the range table ensures that identification of the new data can be recovered in the event of database crash, see col. 5, lines 59-61, Norcott) from an on-line transaction processing (OLTP) system (The source of the data is an online transaction processing (OLTP) database and OLTP databases provide a mechanism for exporting [shipping] data from the database into a static file, see col. 4, lines 20-25); and

Norcott teaches performing (see col. 1, lines 6-8) the steps of:

registering the recovery log with a log viewer (Updates a redo log to indicate the changes made to the range table ensures that identification of the new data can be recovered in the event of database crash, see col. 5, lines 59-61, Norcott);

generating a SQL statement to extract the change data from the recovery log (After all the new records have been added to the "sales" table it is possible to identify the new records by using the ROWID range table, for example by processing the SQL select statement:

SELECT*FROM sales

WHERE (ROWID>=X) AND (ROWID<=Y)

The summary refresh process can access the new data by processing such a select statement after obtaining the values of x and y from the ROWID range table, see col. 6, lines 50-58, Norcott); and

executing the SQL statement (see col. 6, lines 50-55, Norcott), thereby extracting the change data from the recovery log via the log viewer (new data for refresh processing purposes, the server process deletes [extract] the ROWID range from the ROWID range table. Updates a redo log to indicate the changes made to the range table ensures that identification of the new data can be recovered in the event of database crash, see col. 6, lines 29-31 and col. 5, lines 59-61, Norcott) and storing the change data from the recovery log in a change table (the start and end ROWID values are database objects and stored in step 406, see col. 5, lines 58-66, Fig. 4, Norcott), said change data indicating at least one modification that has been performed to a

source object (updates a redo log to indicate the changes made to the range table, see col. 5, lines 59-60, Norcott).

Norcott does not explicitly indicate the claimed "staging system".

Goldring discloses claimed staging system (The Capture component captures changes made to data in tables defined as replication sources by reading the database transaction log or journal, without making any changes to the sources, and is performed asynchronously to business applications using the same replication sources. The captured changes are placed in staging tables, with transaction detail stored in separately in a unit of work table, see col. 3, lines 11-17, Goldring).

It would have been obvious to one ordinary skill in the data processing art, at the time of the present invention, to combine the teachings of the cited references because the staging system of Goldring's teachings would have allowed to Norcott's system to optimize a query to retrieve data from a dynamically increasing relational database storage as suggested by Goldring, see col. 4, lines 18-20. Staging system as taught by Goldring improves to perform aggregation operation includes initialization the base table by executing the query against the relational database (see col. 4, lines 36-41, Goldring).

As to claim 9,

Norcott teaches renaming a source column into a change column (the server process updates a redo log to indicate the changes made to the range table. Since table has been changed columns and rows automatically changed, see col. 5, lines 54-55 and col. 7, lines 3-6, Norcott).

As to claim 10,

Norcott teaches wherein the on-line transaction processing (OLTP) system are provided by different database vendors employing a different, incompatible internal implementation (The source of the data is an online transaction processing (OLTP) database and OLTP databases provide a mechanism for exporting [shipping] data from the database into a static file. The static file then loaded by the server process into the database table and enable the database to processes for update, see col. 4, lines 20-30, Norcott).

***Conclusion***

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

***Contact Information***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mohammad Ali whose telephone number is (703) 605-4356. The examiner can normally be reached on Monday to Thursday from 7:30am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (703) 305-9790 or TC 2100 customer service (703) 306-5631. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-9600.

Mohammad Ali

Patent Examiner

March 18, 2004